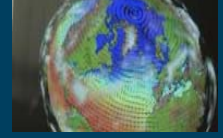
TEIN2



International Research Networking

# TEIN2 Practical and Operational Aspects

**TEIN-07-016**

**David West, DANTE**

**Future EC activities in the Black Sea and Central Asia**

**14 March 2007 , Groningen**

TEIN2

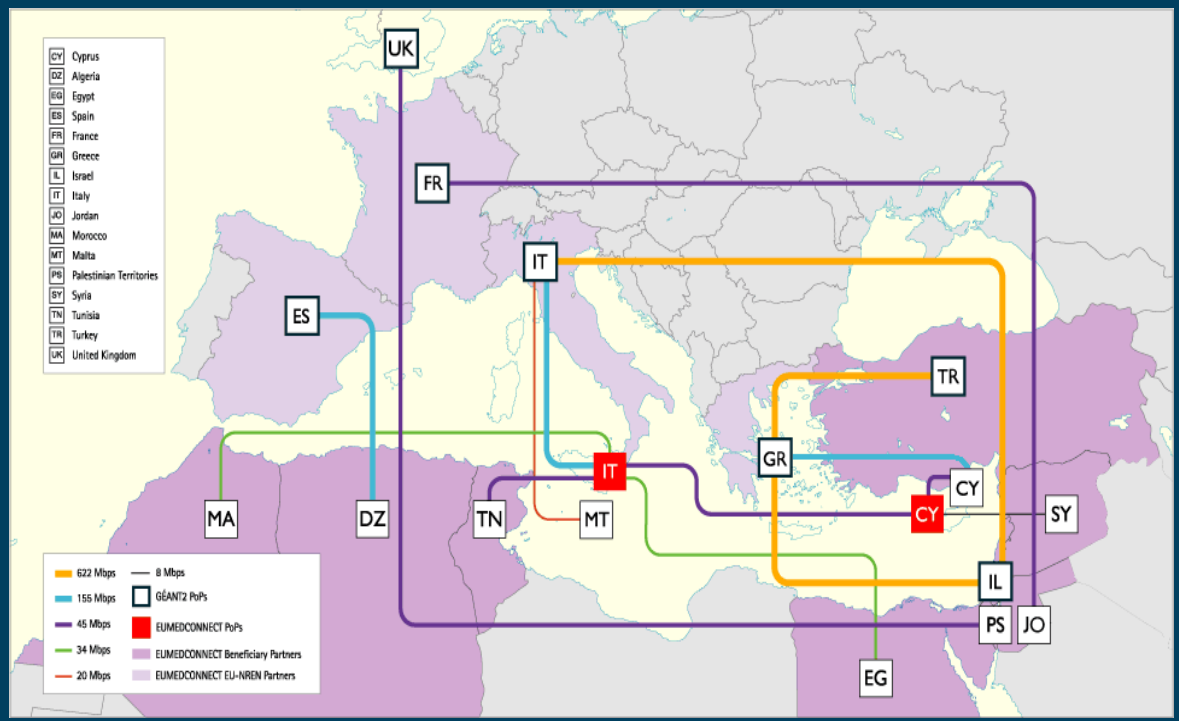
DANTE

# GÉANT2 At the heart of Global Research Networking

GÉANT2 TEIN2 ALICE DANTE

# EUMEDCONNECT

Connect. Communicate. Collaborate

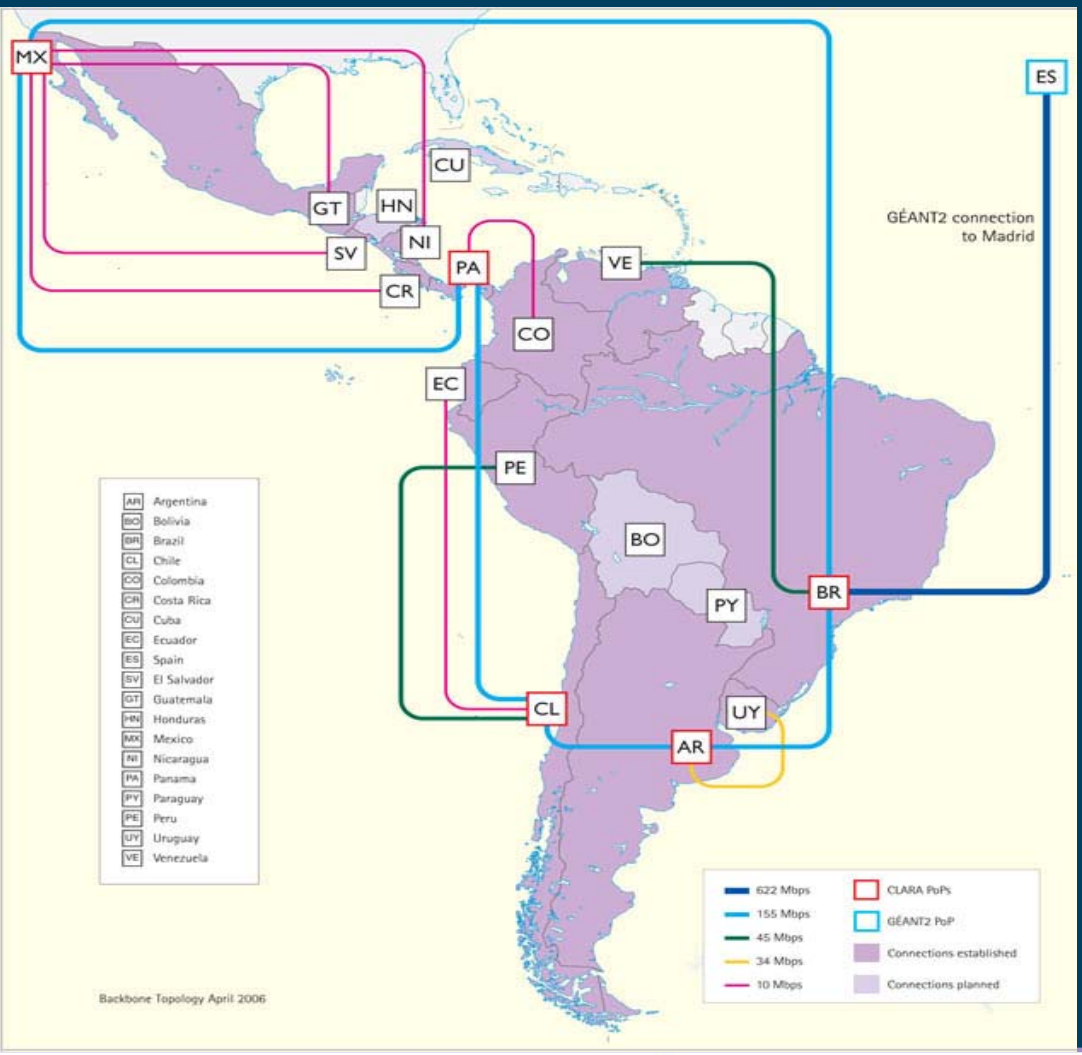



- 11 Mediterranean countries Connected since 2004
- Platform for EUMEDGRID and other EU/MED projects
- Contracted to July 2007, Being extended to Dec 2007
- EUMEDCONNECT2 being Planned
- Plans to form MED consortium

GÉANT2 TEIN2 ALICE America Latina Interconectada Con Europa DANTE

# ALICE/CLARA

Connect. Communicate. Collaborate




- 18 NRENs connected
- Contracted to March 2008
- Active CLARA consortium and exec organisation
- CLARA taking on Network responsibilities

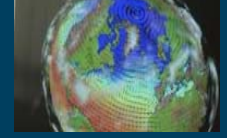
GÉANT2 TEIN2 ALICE DANTE

# When TEIN2 began… (April 2004)

Connect. Communicate. Collaborate

- Diverse partners
  - Beneficiaries: China, Indonesia, Malaysia, Philippines, Thailand, Vietnam
  - Non-beneficiaries:  Brunei, Japan, Korea, Singapore
- National research and education networking varying from advanced to non-existent
- Some bilateral intra-Asia links, mainly provided by JP and KR; one bilateral link AP-EU
- Communicative but competitive partner relationships
- Telecommunication markets vary from competitive to monopolistic
- 10M Euro RELEX funding

GEANT2 TEIN2 ALICE DANTE

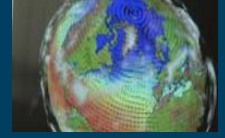




# Planning Studies (Phase 1) April – November 2004

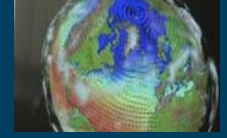
- Scope:
  - NREN status and plans
  - Telecommunications market analysis
  - Scope for network capacity donations
  - Cost-sharing model
  - Project representation and governance
- 4 project meetings held
- 100% EC funding
- Co-ordinated by DANTE

# Tender Stage (Phase 2A) Dec 2004 – Dec 2005+





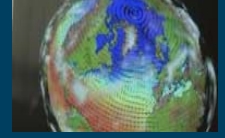
- Tenders conducted by DANTE under EU Procurement rules with negotiated procedures
- Connectivity tender process
  - Contract notice published, no pre-defined topology
  - Information Events held in London and Bangkok
  - Tender dossier sent to 43 suppliers, 24 responses
  - 13 shortlisted for clarifications and negotiations
  - Contracts awarded to 4 Asian and 2 EU suppliers
- NOC Tender
  - Similar process, 5 responses
- All partners contributed 12K Euro towards Phase 2A
- Partner meetings to review progress and agree final topology





# Network Operational Phase (Jan 2006 to Dec 2007, and being extended to Aug 2008) Phase 2B

- Network started up progressively Jan – May 2006
- Emphasis shifted to:
  - Stimulating network usage
  - Training engineers of beneficiary NRENs
  - Sustainability beyond 2007!
- Project funded via EC, beneficiary subscriptions, non-beneficiary contributions (money, capacity)





# TEIN2 Partners

Connected:

Australia, China, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore Thailand, Vietnam

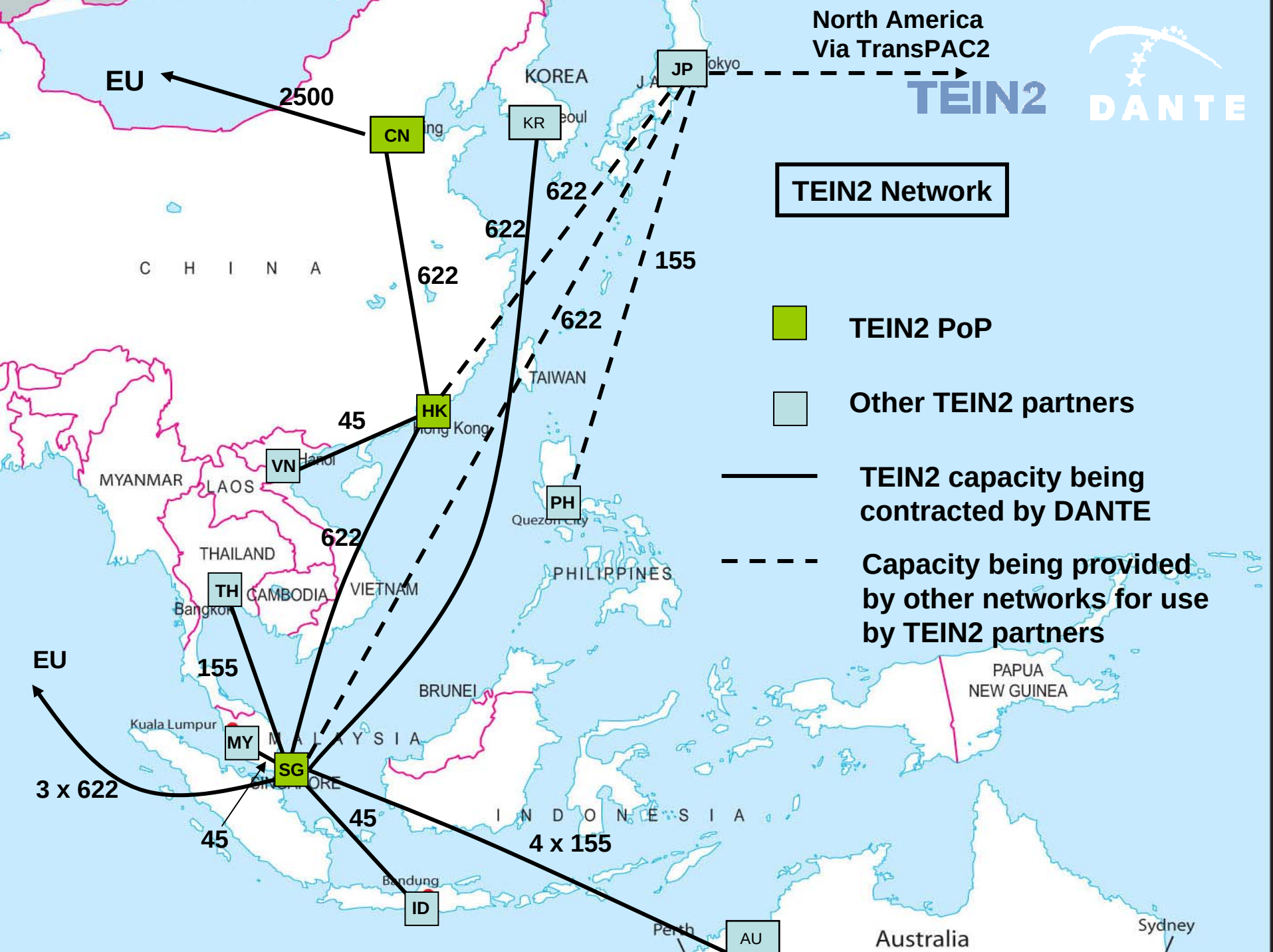
Connection being discussed:

Brunei, Cambodia, Hong Kong, Lao

Future possibilities:

India, Mongolia, New Zealand, Pakistan, other S Asian countries

**Key**
**ASEM countries**
**Joining ASEM**
**Others**


North America
Via TransPAC2
TEIN2
DANTE
EU
2500
CN
KOREA
KR
JP
622
622
622
155
622
45
HK
TAIWAN
VN
MYANMAR
LAOS
PH
622
THAILAND
TH
CAMBODIA
VIETNAM
PHILIPPINES
EU
155
BRUNEI
PAPUA
NEW GUINEA
MY
SG
3 x 622
45
45
4 x 155
ID
AU
Australia
Sydney
TEIN2 Network
TEIN2 PoP
Other TEIN2 partners
TEIN2 capacity being contracted by DANTE
Capacity being provided by other networks for use by TEIN2 partners

# Network Service Support Agreements

| PoP City | Building | Housing Supplier | Router | Juniper distributor | Other equipment provider | Equipment installer | Juniper parts and maintenance | PoP Build management |
|---|---|---|---|---|---|---|---|---|
| Beijing | CERNET | CERNET | Juniper M10i | Bitway | CERNET.com | CERNET.com | Bitway | TEIN2 NOC |
| Hong Kong | Mega-IAdvantage | SingTel | Juniper M20 | Bitway | CERNET.com | CERNET.com | Commverge | TEIN2 NOC |
| Singapore | Kim Chuan | SingTel | Juniper M10i | AARNet | CERNET.com | CERNET.com | NERA | TEIN2 NOC |

**TEIN2 NOC provided by Tsinghua University, at purpose built HK centre**

**Co-operation Agreements with: NII, NICT, MAFFIN, TransPAC2, CERNET, KOREN**

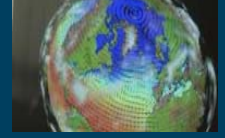
TEIN2

DANTE

# Tele-medicine application

# Enabling and promoting applications

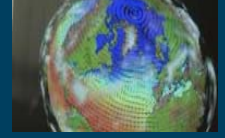
- Tele-medecine – well established, all TEIN2 partners participated for first time during Manila APAN Jan 2007
- Earth Monitoring e.g. Disaster warning, Oceanography, Climatology.  High potential areas.
- E-learning
- E-Heritage
- E-Science e.g collaborations between Europe and China (incl EU/China TEIN2 link now upgraded to 2.5 Gbps via Project ORIENT)





# TEIN3 (after mid 2008)

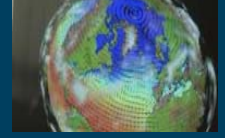
- All TEIN2 partners want the network to be maintained and grow
  - Endorsed by ASEM6 Summit in Helsinki (Sept 2006)
  - Endorsed by ASEM ICT Ministers in Ha Noi (Dec 2006)
- Follow on project being planned ('TEIN3')
  - to follow TEIN2 seamlessly from Sept 2008
  - Possible geographical expansion to S Asia
  - Network will be re-tendered
  - Initially run by DANTE, with responsibility transitioned over time to Asian ownership
- Funding package being developed:
  - Further EC funding being discussed, reducing over time
  - Increasing funding shares from existing beneficiaries
  - Non-beneficiaries contributions being discussed





# Achievements

- First regional Asian R&E network: partners recognise benefit of regional-level collaboration
- Additional partners keen to join
- Traffic growing and user communities forming
- National NREN development catalysed in all beneficiary countries
- Strong political endorsement





# Concluding comments

- Cost of capacity in non-competitive telecoms markets
- Planning for sustainability from the outset
- Importance of promotion to all stakeholders: users, suppliers, political
- Strength of regional actions
- Value of experienced partners